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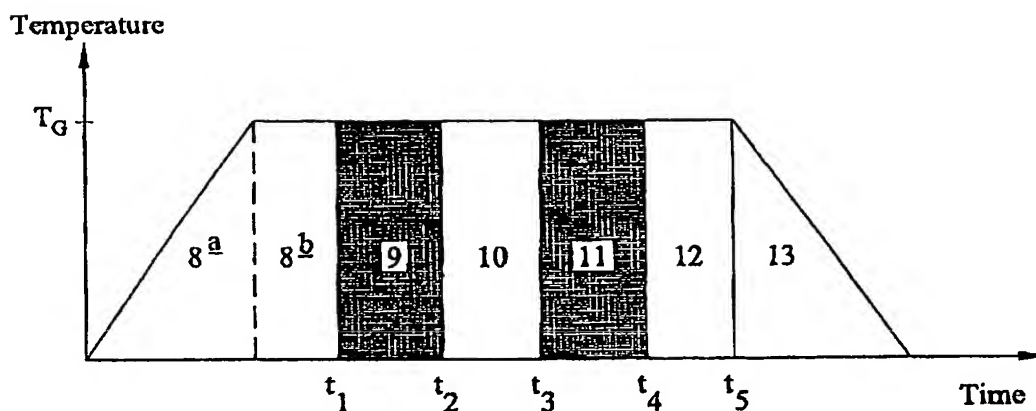
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(54) Title: MBE GROWTH OF AN ALGAN LAYER OR ALGAN MULTILAYER STRUCTURE



(57) Abstract: A method of growing an AlGaIn semiconductor layer structure by Molecular Beam Epitaxy comprises supplying ammonia, gallium and aluminium to a growth chamber thereby to grow a first (Al,Ga)N layer by MBE over a substrate disposed in the growth chamber. The first (Al,Ga)N layer has a non-zero aluminium mole fraction. Ammonia is supplied at a beam equivalent pressure of at least $1 \cdot 10^{-4}$ mbar, gallium is supplied at a beam equivalent pressure of at least $1 \cdot 10^{-8}$ mbar and aluminium is supplied at a beam equivalent pressure of at least $1 \cdot 10^{-8}$ mbar during the growth step. Once the first (Al,Ga)N layer has been grown, varying the supply rate of gallium and/or aluminium enables a second (Al,Ga)N layer, having a different aluminium mole fraction from the first (Al,Ga)N layer to be grown by MBE over the first (Al,Ga)N layer. This process may be repeated to grown an (Al,Ga)N multilayer structure.



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